

Panel Analysis of Monetary Model of ASEAN-5 Exchange Rates

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Abstract

In this study, we examined whether the exchange rates in ASEAN-5 countries are driven by monetary fundamentals. We applied the panel unit root tests and found that the United States denominated nominal exchange rates of Malaysian Ringgit, Indonesian Rupiah, Philippines Peso, Singapore Dollar, and Thailand Baht are all integrated of order one. Meanwhile, relative money supply and relative real income are also integrated in the same order. Nonetheless, the relative interest rate is integrated in order zero, and it implies the uncovered interest rate parity held in ASEAN-5. By using a panel cointegration test pioneered by Pedroni (2000, 2004), we found evidence that there is a long-run relationship between nominal exchange rate and its monetary fundamentals. Consistent with the monetary model of the exchange rate, relative money supply is positively related to nominal exchange rates, while relative real income is negatively related to nominal exchange rates. Therefore, this study reveals the importance of relative real money supply and relative income for the exchange rate market players to predict and monitor ASEAN-5 exchange rates.

Keywords: Monetary Exchange Rate Model, Panel Cointegration, ASEAN

JEL Classification: C33, F31, F41

1. Introduction and Overview

Exchange rate determination has been a focus of research interest for decades, after the collapse of the *Bretton Woods system of fixed exchange rate in the early 1970s*. As we know, exchange rate plays an important role in economics development. With the right tools to predict the exchange rate behavior, it would help in enhancing the economic development of a country. For this reason, various exchange rate models including the monetary model of exchange rate have been postulated and empirically tested. However, many researchers in the 1980s such as Meese and Rogoff (1983), Frankel (1984) and Boughton (1988) have failed to find the satisfactory exchange rate model.

In the 1990s, Kearney and MacDonald (1990), Edison and Pauls (1993) and Rose (1996) have provided further evidence of the empirical failure of the monetary models in explaining exchange rate movements by using Engle and Granger's (1987) two-step procedure. Even though some researchers found evidence showing cointegrating relationship between monetary fundamentals and exchange rates, others could not obtain supportive evidence to validate the monetary models. In addition, Rapach and Wohar (2002) also pointed out that monetary fundamentals are appropriate to predict exchange rates at longer horizons only. Notably, Rapach and Wohar (2002) were able to provide evidence to support monetary model for half of the industrialized-countries under investigation using data that spanned over a century. There is also another strand of research that utilizes nonlinear techniques to improve the power of tests over the conventional test procedures (see for instance Liew, 2004; Liew et al., 2004; Liew, 2008)

On the other hand, Dabrowski et al. (2014) mentioned that panel procedures could be useful to overcome the low power of standard tests for a short span of data. Hsiao (2003) pointed out that panel data sets for economic research possess several major advantages of time-series data sets. Among others, it gives rise to a larger data set, thereby increasing the degree of freedom and improving the efficiency of econometric estimates. Moreover, panel data provides the foundation for aggregate analysis since time series analysis tends to yield less accurate if not misleading aggregate outcome (Hsiao, 2007). In this conjunction, a number of the most recent studies in